

Life Sciences Trends and Challenges:

A technology perspective for 2004-2007



Business change and its impact on technology operations

Increased competition, shorter market cycles, greater customer expectations, changing business models and financial constraints are creating unprecedented demands on the life sciences industry's ability to deliver superior value to shareholders and innovative healthcare to patients across the spectrum of products, processes, services and solutions.

At the same time rising R&D costs and drug patent expirations are driving consolidation in the industry. Companies are pushing for internal R&D productivity and acceleration, and they are focusing on cost cutting, especially in business processes not directly related to R&D or sales and marketing, such as procurement, supply chain and manufacturing. Meanwhile, there is also greater attention to patient-oriented marketing and overall sales and marketing productivity and effectiveness.

The pace of change is significant and profound. Research from HP has confirmed that the average business changes seven times faster than the ability of its basic information technology (IT) operations to adapt to these changes. This pace of change not only impacts people and processes, it is also demanding new ways in which the life sciences industries must look at IT strategy and infrastructure as a means of anticipating, enabling, adapting and leading this change.

As a result, HP predicts that the priority will be on deploying flexible and collaborative systems that decrease the time to market for innovative drug products with ever shorter periods of exclusivity, while reducing costs and opening up new revenue streams. Companies cannot meet these new demands on their own. They must work together with suppliers, distributors, customers and partners to quickly and cost-effectively bring enhanced products to market. Future market leaders will focus on their core competencies and collaborate across the extended enterprise to create value and dominate markets.

IT then and now: the big challenge

Traditional IT processes, however, were not developed for the new demands of an agile business. Therefore, many within the life sciences face the problem of how to integrate their IT infrastructure with their business processes and models.

Many organisations currently have complex applications that were originally designed and deployed as independent, non-integrated processes. Lack of integration between these critical business processes and the weak – if any – linkage across systems has resulted in a complex network of heterogeneous and siloed assets, kept under control through long hours of work and increasing costs. This has also resulted in increased costs and lack of visibility in the supply chain.

Organisations that are structured in this way are challenged both by continued organic growth and the quick opportunistic moves of an agile business. When rapid change is imposed on an IT infrastructure that is not designed for it, the only choices are costly redeployment of existing assets or (worse) adding yet another silo of incompatible IT. In such an environment, every change makes the business less agile. It is little wonder that leaders within life sciences have identified integration of processes and applications in support of collaboration within and across enterprises as a top priority.

How IT can anticipate, support – and even drive – business change

HP believes that the ability to anticipate and adapt to change is necessary operationally as well as strategically, and short-term as well as long-term. This is because IT can either enable business agility or constrain it. For every organisation within the life sciences

that uses IT strategically to transform a market or create a new one, others struggle to redeploy legacy systems in the face of raised patient or medical expectations, as well as competitive attacks.

HP also believes that a focus on business processes and the enabling infrastructures that support them is the key to this success. An adaptive IT infrastructure forms the foundation of an adaptive enterprise. If the life sciences industries are able to get the infrastructure right, then everything else is possible. An adaptive enterprise can change as quickly as the agile business must – and it can do so on an appropriate scale, with reasonable resource consumption and maximum reuse of legacy assets. When IT can finally be deployed and managed at the pace of business change, it will advance from its supporting role to come front-and-center as a driver of business success.

Finally, HP believes that companies will undergo three phases in evolving to an adaptive enterprise:

- Life sciences will first need to integrate the business processes existing within their organisations;
- Secondly, they must link to key partners in a way that creates seamless, secure and truly extended value chains;
- Finally, life sciences will need to leverage this IT network in a way that creates real value to their customers and partners, and captures new markets.

All of this must take place within the constraints imposed by regulatory bodies such as the US Food and Drug Administration (FDA) in the U.S., for example, and other regulators to ensure the safety and efficacy of healthcare products and services.

Real-world examples from real-world leaders

A number of top-tier research organisations, pharmaceutical, and other life science companies are currently working with HP to tackle these challenges. Together, precedents we are setting are benchmarks for the industry. Some of these include:

1. [Wellcome Trust Sanger Institute](#). The super-computer HP installed at the Institute in the UK offers 24x7 computing capabilities to capture and electronically publish the results of genomic sequencing.
2. [Aventis Crop Science](#) is conquering the paper mountain via a document management system enabling 1.86 million pages to be scanned and

archived electronically.

3. Bristol-Myers Squibb (BMS) has implemented a data warehousing solution that reduces analytical costs, data delivery times, and end-user training, and improves data quality and subsequent decision-making. HP Services designed and implemented an MBS sales and marketing data warehouse with an extract, transform, and load (ETL) process, based on an HP 9000 V2500 as a dedicated ETL server.

HP: industry commitment, industry leadership

HP is a leading provider of technology and computing solutions for fundamental life sciences research. The company brings more than 60 years of global leadership and expertise as a high-tech and electronics manufacturer to bear with developing and deploying solutions for life sciences. HP leverages its own expertise and technology with that of key partners, customers, and leading university research centres. These include LION Bioscience, Accelrys, Tripos, Oracle, and Platform Computing for research and development; SAP, PRTM, and PTC for supply chain management; and Siebel for CRM and demand chain management.

HP's research experience also includes working on the Human Genome Project with many of the major global research centres, including the world's largest genomic sequencing facilities at the Wellcome Trust Sanger Institute in the UK. Under these partnerships, the time to map the full human genome was dramatically compressed through aggressive, large-scale application of sequencing and computing technology from HP. Other select collaboration and research participation has included: sponsorship of the International Genomics Consortium (IGC) – a non-profit organisation that researches the genomics behind cancer and other medical conditions; support for CASP5 – protein folding analysis competition; LBNL and LANL-PHENIX structural genomics software development and; American Diabetes Association and Entelos – research into both type 1 and type 2 diabetes drug discovery and development.

HP ensures cost-effective flexibility and all-important stability at the IT infrastructure core, extending value and reach to virtually all aspects of the life sciences enterprise. As a result, HP enables companies to address the following needs:

- Identify new drugs and healthcare products more quickly;
- Reduce time to market for new drugs and healthcare products;
- Increase supply chain responsiveness and agility;
- Differentiate themselves in the marketplace; and
- Optimise return on IT investments (RoIT).

HP's approach is to design, build, integrate, manage and evolve IT infrastructures for life sciences that are highly available, secure and agile. These infrastructures enable IT organisations to respond rapidly to changes in the business environment, meet ever-increasing user demand, allow IT to balance investments against the risk of security breaches and disasters, as well as reduce total cost of ownership (TCO) and help maximise return on IT investment (RoIT).

HP works with customers to determine which combination of its solutions works best with their situation. HP prides itself on the fact that no matter which component of a customer's business and technology environment HP's family of life sciences solutions may address, they will all offer the following critical benefits:

- Integrated business and scientific information systems;
- A highly available, scalable, and agile infrastructure;
- Increased RoIT through increased productivity;
- Lower total cost of ownership;
- Reduction of overall IT spending; and
- A basis in industry best practices.

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